



**Rules and  
Regulations for  
the Classification  
of Ships, July 2006**

**Notice No. 4**

Effective Date of Latest  
Amendments:

See page 1

Issue date: January 2007

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# **RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, *July 2006***

## **Notice No. 4**

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Ships, July 2006*. The amendments are effective on the dates shown:

<b>Part</b>	<b>Chapter</b>	<b>Section</b>	<b>Effective date</b>
1	3	1, 2, 6, 15	1 January 2007
2	5	2	1 January 2007
2	14	5	Corrigendum
3	2	1	Corrigendum
3	8	5	Corrigendum
3	9	7	Corrigendum
3	13	2	1 January 2007
4	7	1	Corrigendum
4	7	14	1 January 2007
5	4	1	Corrigendum
5	12	5	Corrigendum
6	2	1, 3	Corrigenda

The *Rules and Regulations for the Classification of Ships, July 2006* are to be read in conjunction with this Notice No. 4. The status of the Rules is now:

Rules for Ships	Effective date:	July 2006
Notice No. 1	Effective dates:	1 April, 1 July 2006 & Corrigenda
Notice No. 2	Effective date:	1 January 2007
Notice No. 3	Effective date:	1 July 2006 & Corrigenda
Notice No. 4	Effective date:	1 January 2007 & Corrigenda

## Part 1, Chapter 3

### Periodical Survey Regulations

Effective date 1 January 2007

#### Section 1

#### General

#### 1.6 Preparation for survey and means of access

1.6.5 For surveys, including close-up survey where applicable, in cargo spaces and ballast tanks, one or more of the following means of access, is to be provided:

- (a) Permanent staging and passages through structures.
- (b) Temporary staging and passages through structures.
- (c) Lifts and movable platforms.
- (d) Boats or rafts.
- (e) Other equivalent means.

Portable ladders may be used, at the discretion of the Surveyor, for survey of the hull structure of single skin bulk carriers, except for the close-up survey of cargo hold shell frames, see 1.6.6 and 1.6.7.

1.6.6 For close-up surveys of the cargo hold shell frames of single skin bulk carriers with a deadweight less than 100,000 tonnes, one or more of the following means of access is to be provided:

- (a) Permanent staging and passages through structures.
- (b) Temporary staging and passages through structures.
- (c) Portable ladder restricted to not more than 5 m in length may be accepted for surveys of the lower section of a shell frame including bracket.
- (d) Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms.
- (e) Boats or rafts, provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water.
- (f) Other equivalent means.

1.6.7 For close-up surveys of the cargo hold shell frames of single skin bulk carriers with a deadweight equal to or greater than 100,000 tonnes, the use of portable ladders is not accepted and one or more of the following means of access is to be provided:

- (a) At Annual Surveys, Intermediate Surveys held before the ship is 10 years old and Special Survey I:
  - (i) Permanent staging and passages through structures.
  - (ii) Temporary staging and passages through structures.
  - (iii) Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms.
  - (iv) Boats or rafts, provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water.
  - (v) Other equivalent means.

- (b) At Special Survey II and all subsequent Intermediate Surveys and Special surveys:
  - (i) Either permanent or temporary staging and passage through structures for close-up survey of at least the upper part of hold frames.
  - (ii) Hydraulic arm vehicles such as conventional cherry pickers for surveys of lower and middle part of shell frames as alternative to staging.
  - (iii) Lifts and movable platforms.
  - (iv) Boats or rafts, provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water.
  - (v) Other equivalent means.
- (c) Notwithstanding the above requirements, for single skin bulk carriers greater than 10 years old, at Annual Survey the use of a portable ladder fitted with a mechanical device to secure the upper end of the ladder is acceptable for the close-up survey of cargo hold shell frames.

~~1.6.6~~ 1.6.8 Survey at sea or anchorage may be undertaken when the Surveyor is fully satisfied with the necessary assistance from the personnel on board and provided the following conditions and limitations are met:

- (a) Surveys of tanks by means of boats or rafts is at the sole discretion of the attending Surveyor, who is to take into account the safety arrangements provided, including weather forecasting and ship response ~~in reasonable under foreseeable sea conditions and provided the expected rise of water within the tank does not exceed 0.25 m.~~ Appropriate life jackets are to be available for all participants. The boats or rafts are to have satisfactory residual buoyancy and stability even if one chamber is ruptured. A safety checklist is also to be provided. An oxygen-meter, breathing apparatus, lifeline and whistles are to be at hand during the survey. For oil tankers and chemical tankers, an explosimeter is also to be provided.
- (b) A communication system is to be arranged between the survey party in the tank and the responsible officer on deck. This system must include the personnel in charge of ballast pump handling if boats or rafts are to be used.
- (c) ~~Surveys of tanks by means of boats or rafts will only be permitted for the under deck areas of tanks when the coating of the under deck structure is in GOOD condition and there is no evidence of wastage. The only exception to this, at the discretion of the Surveyor, is where the depth of under deck web plating is 1,5 m or less. Alternatively, rafting may be used if a permanent means of access is provided in each bay to allow safe entry and exit. This means of access is to be direct from deck via a vertical ladder and a small platform fitted approximately 2 m below deck. Where these conditions are not met, then the under deck area will require to be staged for survey.~~

Rafts or boats may be permitted for the survey of the under deck areas of tanks or spaces, if the depth of the under deck web plating is 1,5 m or less. If the depth of the under deck web plating is greater than 1,5 m, then rafts or boats may be permitted only when the coating of the under deck structure is in GOOD condition and there is no evidence of wastage or if a permanent means of access is provided in each bay to allow safe entry and exit.

A permanent means of access is considered to mean:

- (i) Access direct from the deck via a vertical ladder and a small platform fitted approximately 2 m below the deck in each bay or,
- (ii) Access to deck from a longitudinal permanent platform having ladders to the deck at each end of the tank. The platform shall be arranged over the full length of the tank and level with, or above, the maximum water level needed for rafting of the under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 m from the deck plate measured at the midspan of deck transverses and at the mid point of the tank's length.

If neither of the above conditions are met, then staging or another equivalent means is to be provided for the survey of the under deck areas.

*Existing paragraphs 1.6.7 and 1.6.8 are to be renumbered 1.6.9 and 1.6.10.*

## Section 2 Annual Surveys - Hull and machinery requirements

### 2.2 Annual Surveys

2.2.25 For **bulk carriers**, in addition to the applicable requirements of 2.2.1 to 2.2.21, the following are to be dealt with, where applicable:

- (a) Examination of cargo holds in accordance with Table 3.2.1 is required.
- (b) Where substantial corrosion, as defined in 1.5, has been noted then additional measurements are to be carried out in accordance with Tables 3.6.4, 3.6.5, 3.6.6, 3.6.7, 3.6.8 and 3.6.9. The survey will not be considered complete until these additional thickness measurements have been carried out.
- (c) For ships fitted with water level detectors in cargo holds, ballast tanks forward of the collision bulkhead and any dry or void space which extends forward of the foremost cargo hold, an examination and a test, at random, of the water ingress detection systems and of their alarms is to be carried out.
- (d) For ships fitted with a means for draining and pumping ballast tanks forward of the collision bulkhead and the bilges of dry spaces, any part of which extends forward of the foremost cargo hold, an examination and a test of the draining and pumping systems, including their controls, is to be carried out.

## Section 6 Special Survey - Bulk carriers - Hull requirements

### 6.4 Overall Survey

6.4.8 For ships fitted with water level detectors in cargo holds, ballast tanks forward of the collision bulkhead and any dry or void space which extends forward of the foremost cargo hold, an examination and a test of the water ingress detection systems and of their alarms is to be carried out.

6.4.9 For ships fitted with a means for draining and pumping ballast tanks forward of the collision bulkhead and the bilges of dry spaces, any part of which extends forward of the foremost cargo hold, an examination and a test of the draining and pumping systems including their controls is to be carried out.

## Section 15 Boilers

### 15.1 Frequency of surveys

15.1.1 All boilers, economizers, steam receivers, steam heated steam generators, thermal oil and hot water units intended for essential services, together with boilers used exclusively for non-essential services having a working pressure exceeding ~~3,4~~ <sup>3,5</sup> bar and a heating surface exceeding ~~4,65~~ <sup>4,5</sup> m<sup>2</sup> are to be surveyed ~~at intervals not exceeding 2½ years and generally examined externally at the time of the Annual Survey of the ship~~ internally. There is to be a minimum of two internal examinations during each five-year Special Survey cycle. The interval between any two such examinations is not to exceed 36 months. A general external examination is to be carried out at the time of the Annual Survey.

15.1.2 Consideration may be given in exceptional circumstances to an extension of the internal examination of the boiler not exceeding three months beyond the due date. The extension may be granted after the following is satisfactorily carried out:

- (a) External examination of the boiler.
- (b) Examination and operational test of the boiler safety valve relieving gear (easing gear).
- (c) Operational tests of the boiler protective devices.
- (d) Review of the following records since the previous Boiler Survey:
  - Operation
  - Maintenance
  - Repair history
  - Feedwater chemistry.

In this context 'exceptional circumstances' means unavailability of repair facilities, essential materials, equipment or spare parts, or delays incurred by action taken to avoid severe weather conditions.

15.1.3 An external survey of boilers including tests of safety and protective devices, and tests of safety valves using their relieving gear, is to be carried out annually within the range dates of the Annual Survey of the ship. For exhaust gas heated economizers, the safety valves are to be tested by the Chief Engineer at sea within the range dates of the Annual Survey. This test is to be recorded in the log book and reviewed by the attending Surveyor prior to crediting the Annual Survey.

## Part 1, Chapter 3 and Part 2, Chapter 5

### 15.2 Scope of surveys

15.2.1 At the surveys described in 15.1, the boilers, superheaters, economizers and air heaters are to be examined internally on the water-steam side and the fire side, and externally and where considered necessary, the pressure parts are to be tested by hydraulic pressure and the thicknesses of plates and tubes and sizes of stays are to be ascertained to determine a safe working pressure. The safety valves and principal mountings on boilers, superheaters and economizers are to be opened up and examined and opened up as necessary by the Surveyor, and the safety. The adjustment of safety valves is to be verified during each boiler internal survey. Boiler safety valves and their relieving gear are to be examined and tested to verify their satisfactory operation. Safety valves are to be set under steam to a pressure not greater than the approved design pressures of the respective parts. As a working tolerance, the setting is acceptable, provided that the valves lift at not more than 103 per cent of the approved design pressure. The remaining mountings are to be examined externally and, if considered necessary by the Surveyor, are to be opened up for internal examination. However, for exhaust gas heated economizers, if steam cannot be raised in port, the safety valves may be set by the Chief Engineer at sea, and the results recorded in the log book and reviewed by the attending Surveyor. The following records since the previous Boiler Survey are to be reviewed as part of the survey:

- Operation
- Maintenance
- Repair history
- Feedwater chemistry.

The remaining mountings are to be examined externally and, if considered necessary by the Surveyor, are to be opened up for internal examination. Collision chocks, rolling stays and boiler stools are to be examined and maintained in an efficient condition.

15.2.2 In addition to the foregoing, in exhaust gas heated economizers of the shell type, all accessible welded joints are to be subjected to a visual examination in order to identify any evidence of cracking. Non-destructive testing may be required for this purpose and may be requested by the Surveyor.

*Existing paragraphs 15.2.2 to 15.2.4 are to be renumbered 15.2.3 to 15.2.5.*

15.2.5 15.2.6 At the annual General Examination referred to in 15.1.4 15.1 the requirements of 2.2.11 are to be complied with.

## Part 2, Chapter 5 Steel Forgings

Effective date 1 January 2007

### ■ Section 2 Forgings for ship and other structural applications

#### 2.4 Mechanical tests

2.4.6 For rudder stocks, pintles, and rudder coupling keys and bolts, the minimum specified yield strength is not to be less than 200 N/mm<sup>2</sup> 235 N/mm<sup>2</sup>. (see shaded area in Table 5.2.1), see Table 13.2.4 in Pt 3, Ch 13.

**Table 5.2.1 Mechanical properties for ship and other structural applications**

Steel type	Yield stress N/mm <sup>2</sup> minimum	Tensile strength N/mm <sup>2</sup>	Elongation on $5,65\sqrt{S_0}$ min. %		Reduction of area min. %	
			Long.	Tang.	Long.	Tang.
C and C-Mn	180	360-480	28	20	50	35
	200	400-520	26	19	50	35
	220	440-560	24	18	50	35
	235	470-590	23	17	45	35
	240	480-600	22	16	45	30
	260	520-640	21	15	45	30
	280	560-680	20	14	40	27
	300	600-750	18	13	40	27
	320	640-790	17	12	40	27
	340	680-830	16	12	35	24
	360	720-870	15	11	35	24
	380	760-910	14	10	35	24
Alloy	350	550-570	20	14	50	35
	400	600-750	18	13	50	35
	450	650-800	17	12	50	35

Steel type	Yield stress N/mm <sup>2</sup> minimum	Tensile strength N/mm <sup>2</sup>	Elongation on $5,65\sqrt{S_0}$ min. %		Reduction of area min. %	
			Long.	Tang.	Long.	Tang.
C and C-Mn	180	360-480	28	20	50	35
	200	400-520	26	19	50	35
	220	440-560	24	18	50	35
	235	470-590	23	17	45	35
	240	480-600	22	16	45	30
	260	520-640	21	15	45	30
	280	560-680	20	14	40	27
	300	600-750	18	13	40	27
	320	640-790	17	12	40	27
	340	680-830	16	12	35	24
	360	720-870	15	11	35	24
	380	760-910	14	10	35	24
Alloy	350	550-570	20	14	50	35
	400	600-750	18	13	50	35
	450	650-800	17	12	50	35

## Part 2, Chapter 14

### Plastics Materials

#### CORRIGENDUM

#### Section 5

#### Control of material quality for composite construction

#### 5.11 Minimum tested requirements for material approval

**Table 14.5.5 Laminates, minimum property requirements (part only shown)**

Material type	Property	Value
Uni-directional reinforcement	Tensile strength (stress at maximum load) (N/mm <sup>2</sup> )	<del>400</del> $1800 G_c^2 - 1400 G_c + 510$
	Modulus of elasticity in tension (kN/mm <sup>2</sup> )	$130 G_c^2 - 114 G_c + 39$

## Part 3, Chapter 2 Materials

### CORRIGENDUM

#### ■ Section 1 Materials of construction

#### 1.3 Aluminium

**Table 2.1.2** Minimum mechanical properties for aluminium alloys (*part only shown*)

Alloy	Condition	0,2% proof stress, N/mm <sup>2</sup>		Ultimate tensile strength, N/mm <sup>2</sup>	
		Unwelded	Welded (see Note 4)	Unwelded	Welded (see Note 4)
5059	H116/H321	260	160	360	<del>330</del> 300

## Part 3, Chapter 8 Superstructures, Deckhouses and Bulwarks

### CORRIGENDUM

#### ■ Section 5 Bulwarks, guard rails and other means for the protection of crew

#### 5.3 Freeing arrangements

5.3.1 The requirements of 5.3.2 to 5.3.11 apply to ships of Type 'B'. Additional requirements applicable to ships of Type 'A', Type 'B-100' and Type 'B-60' are indicated in ~~5.3.14 to 5.3.16~~ 5.3.18 and 5.3.20. The ship Types are as defined in Ch 11,1.1.

## Part 3, Chapter 9 Special Features

### CORRIGENDUM

#### ■ Section 7 Strengthening requirements for navigation in first-year ice conditions

#### 7.7 Rudder and steering arrangements

7.7.4 The scantlings of the stock, pintles, gudgeon and solepiece associated with the nozzle are to be increased on the basis given in ~~7.9.4~~ 7.7.1. However, the diameter of the nozzle stock is to be not less than that calculated in the astern condition taking the astern speed as half the speed given in Table 9.7.3 or the actual astern speed, whichever is the greater.



## Part 3, Chapter 13

### Ship Control Systems

Effective date 1 January 2007

#### ■ Section 2

### Rudders

#### 2.4 Rudder stock and main bearing

**Table 13.2.4 Material factor  $k_o$**

$\sigma_o$	$k_o$
For $\sigma_o > 235$ (24)	$\left(\frac{235}{\sigma_o}\right)^{0,75} \left(\frac{24}{\sigma_o}\right)^{0,75}$
For $\sigma_o \leq 235$ (24)	$\left(\frac{235}{\sigma_o}\right) \left(\frac{24}{\sigma_o}\right)$
Symbols	
$\sigma_o$ = minimum yield stress in N/mm <sup>2</sup> (kgf/mm <sup>2</sup> ) $k_o$ = higher tensile steel correction factor	
NOTE $\sigma_o$ is to be taken not greater than 70 per cent of the ultimate tensile strength or 450 N/mm <sup>2</sup> (45,9 kgf/mm <sup>2</sup> ), whichever is the lesser. $\sigma_o$ is not to be less than 200 N/mm <sup>2</sup> , see Pt 2, Ch 5,2.4.6.	

## Part 4, Chapter 7

### Bulk Carriers

#### CORRIGENDUM

#### ■ Section 1

### General

#### 1.4 Class notation for CSR bulk carriers

1.4.3 The following additional notations and annotations are to be provided giving further detailed description of limitations to be observed during operation as a consequence of the design loading condition applied during the design.

- Notations:**  
**(maximum cargo density (in tonnes/m<sup>3</sup>))** For notations **BC-A** and **BC-B** if the maximum cargo density is less than 3,0 tonnes/m<sup>3</sup>;  
**(no MP)** For all notations when the vessel has not been designed for loading and unloading in multiple ports in accordance with the conditions specified in ~~46.3~~ *IACS Common Structural Rules for Bulk Carriers (CSR)* Ch 4,7.3.3;  
**GRAB [X]** where the net thickness of inner bottom, lower strake of hopper tank sloping plate and transverse lower stool plating comply with *IACS Common Structural Rules for Bulk Carriers (CSR)* Ch 12,1 for **BC-A** and **BC-B**, see also CSR Ch 1,1;
- Annotations:**  
 (allowed combination of specified empty holds). For notation **BC-A**.

## Part 4, Chapter 4 & Part 5, Chapters 4 and 12

Effective date 1 January 2007

### ■ Section 14 Forecastles

#### 14.1 Arrangement

14.1.2 The aft bulkhead of the forecastle is to be fitted in way or aft of the forward bulkhead in the foremost cargo hold. See Fig. 7.14.1. However, if this requirement hinders hatch cover operation, the aft bulkhead of the forecastle may be fitted forward of the forward bulkhead of the foremost cargo hold provided the forecastle length is not less than 7% of ship length abaft the forward perpendicular where the ship length and forward perpendicular are defined in the International Convention on Load Line 1966 and its Protocol 1988.

## Part 5, Chapter 4 Gas Turbines

### CORRIGENDUM

### ■ Section 1 General requirements

#### 1.1 Application

1.1.1 This Chapter is to be read in conjunction with Chapter 1 *General Requirements for the Design and Construction of Machinery*, Pt 6, Ch 1 *Control Engineering Systems*, and Pt 6, Ch 2 *Electrical Engineering Systems*.

## Part 5, Chapter 12 Piping Design Requirements

### CORRIGENDUM

### ■ Section 5 Plastics pipes

#### 5.4 Fire performance criteria

**Table 12.5.3** Fire endurance requirements (part only shown)

#### NOTES

1. Where non-metallic piping is used, remotely controlled valves to be provided at ship's side (valve is to be controlled from outside space).
2. Remote closing valves to be provided at the cargo tanks.
3. When cargo tanks contain flammable liquids with f.p. > 60°C, 'O' may replace 'N/A' or 'X'.
4. For drains serving only the space concerned, 'O' may replace 'L1'.
5. When controlling functions are not required by the Rules or statutory requirements, 'O' may replace 'L1'.
6. For pipe between machinery space and deck water seal, 'O' may replace 'L1'.
7. For passenger vessels, 'X' is to replace 'L1'.
8. Scuppers serving open decks in positions 1 and 2, as defined in regulation 13 of the International Convention on Load Lines, 1966, should be 'X' throughout unless fitted at the upper end with the means of closing capable of being operated from a position above the freeboard deck in order to prevent downflooding.
9. For essential services, such as oil fuel tank heating and ship's whistle, 'X' is to replace 'O'.
10. For tankers where compliance with paragraph 3(f) of regulation 13F of Annex I of MARPOL 73/78 Regulation 19.3.6 of the revised Annex I of MARPOL 73/78 is required, 'N/A' is to replace 'O'.
11. Air and sounding pipes on open deck are to be of substantial construction, see Pt 5, Ch 13, 10.2.2.

## Part 6, Chapter 2 Electrical Engineering

### CORRIGENDA

#### ■ *Section 1* **General requirements**

##### **1.5 Definitions**

1.5.10 'Machinery spaces of Category A' are those spaces and trunks to such spaces which contain:

- (a) internal combustion machinery used for main propulsion; or
- (b) internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kW; or
- (c) any oil-fired boiler or oil fuel unit.

#### ■ *Section 3* **Emergency source of electrical power**

##### **3.2 Emergency source of electrical power in passenger ships**

3.2.12 In order to ensure the ready availability of the emergency source of electrical power to supply emergency circuits, arrangements are to be made, where necessary, when the generator is overloaded, to automatically disconnect sufficient non-emergency circuits from the emergency switchboard to ensure its continued safe operation.

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